FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

December 18 to December 24, 2011 (Week 51)

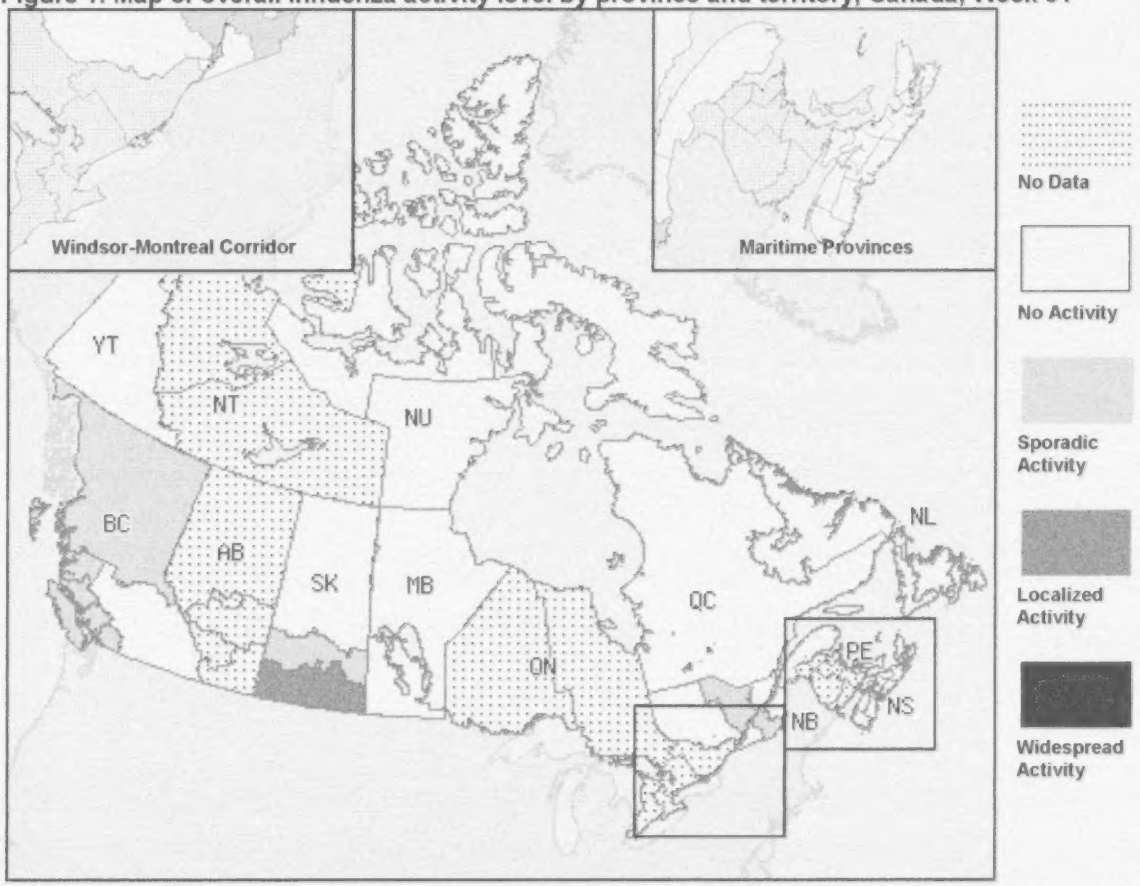
Overall Influenza Summary

- Influenza activity in Canada has remained similar to previous weeks
- One region (within SK) reported localized influenza activity and 7 regions (within BC, SK & QC) reported sporadic influenza activity
- One outbreak of influenza in a long-term care facility was reported this week
- In week 51, 49 laboratory detections of influenza were reported (47 A/H3 and 2 B)
- Two paediatric influenza hospitalizations were reported this week
- The national ILI consultation rate remains within expected levels for this time of year.

Influenza Activity (geographic spread) and Outbreaks

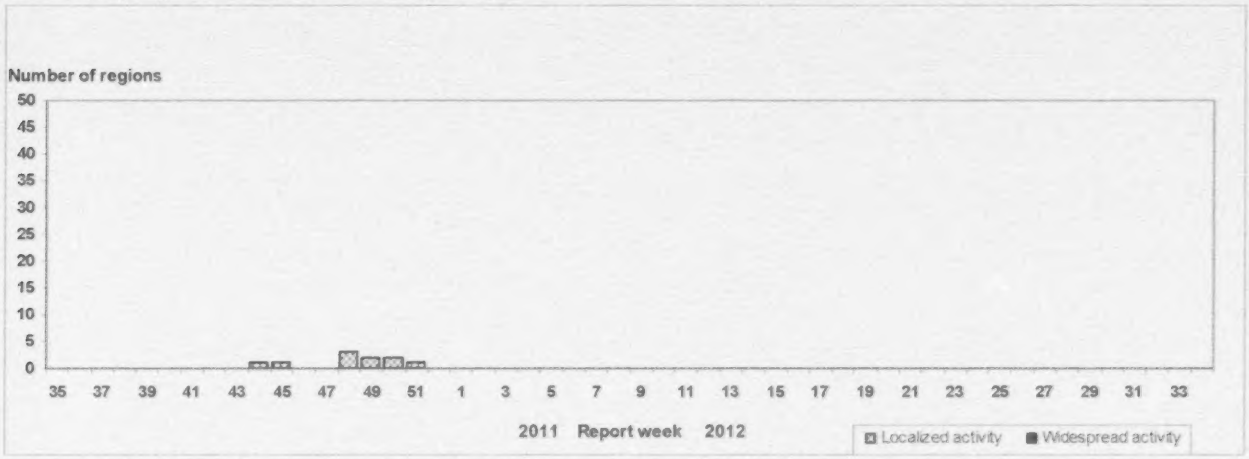
In week 51, one surveillance region (within SK) reported localized activity and 7 regions (within BC, SK & QC) reported sporadic influenza activity. Note that data was not received from several provinces and territories this week: AB, ON, NB, PEI and NT (see Figure 1). One outbreak of influenza was reported this week in a long-term care facility in SK (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 51



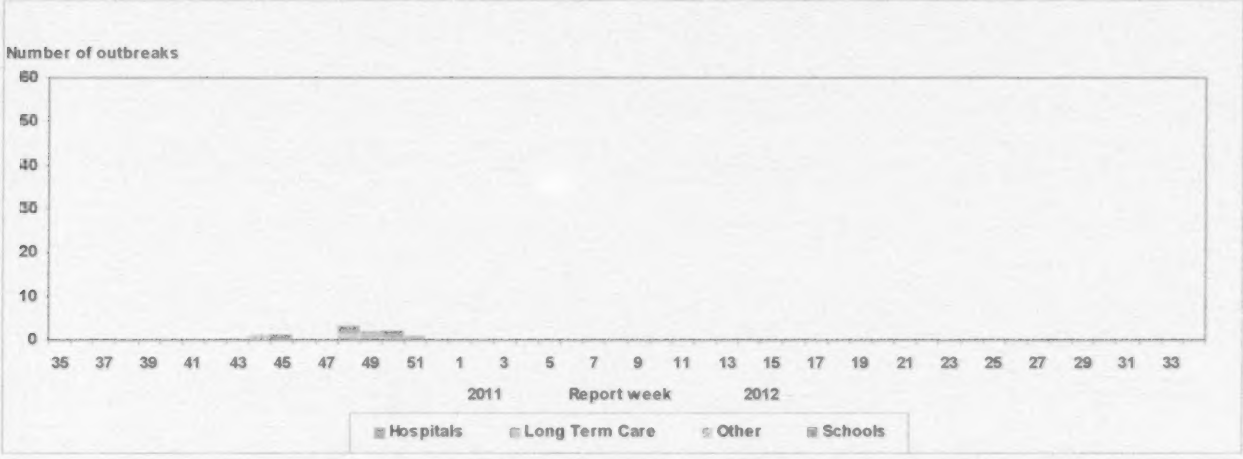
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2011-2012 (N=56)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2011-2012



Influenza and Other Respiratory Virus Detections

In week 51, the proportion of positive influenza tests increased to 4.3% (49/1,129) (Figure 4 & 5). Note that laboratory findings from NL, QC, MB and the majority of laboratories in ON were not received this week. Of the provinces reporting positive influenza detections, the proportion of tests positive ranged from a high of 18.1% in BC to a low of 1.0% in ON.

The proportion of influenza virus detections by type/subtype this season to date is as follows: 87.9% influenza A (80% - A(H3); 4% - A(H1N1)pdm09; 16% - unsubtyped) and 12.1% influenza B (Table 1).

Detailed information on age and type/subtype were received on 229 cases this season to date (Table 2). The proportions of cases by age group are as follows: 19.2% were < 5 years; 11.4% were between 5-19 years; 27.1% were between 20-44 years; 13.5% were between 45-64 years of age; and 28.8% were >= 65 years.

In week 51, the proportion of tests positive for RSV (9.8%) declined meanwhile the proportion positive for hMPV increased to 10.4%. The proportion of positive tests for the other respiratory viruses remained similar to previous weeks (rhinovirus-9.8%; parainfluenza-6.2%; adenovirus-2.8%; coronavirus-1.7%) (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada report.

Table 1. Weekly & Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2011-2012

Reporting provinces	December 18 to December 24, 2011)						Cumulative (August 28, 2011 to December 24, 2011)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	25	0	25	0	0	1	87	0	87	0	0	4
AB	8	0	8	0	0	0	46	0	43	1	2	4
SK	12	0	12	0	0	0	21	0	21	0	0	0
MB	0	0	0	0	0	0	0	0	0	0	0	0
ON	2	0	2	0	0	1	19	0	12	5	2	5
QC	0	0	0	0	0	0	30	0	0	2	28	14
NB	0	0	0	0	0	0	0	0	0	0	0	1
NS	0	0	0	0	0	0	0	0	0	0	0	0
PE	0	0	0	0	0	0	0	0	0	0	0	0
NL	0	0	0	0	0	0	0	0	0	0	0	0
Canada	**47**	**0**	**47**	**0**	**0**	**2**	**203**	**0**	**163**	**8**	**32**	**28**

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2011-2012*

Age groups	Weekly (Dec. 18 to Dec. 24, 2011)					Cumulative (Aug. 28, 2011 to Dec. 24, 2011)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	3	0	3	0	0	38	3	27	8	6
5-19	6	0	6	0	0	23	0	22	1	3
20-44	7	0	7	0	0	56	3	45	8	6
45-64	6	0	6	0	0	27	0	24	3	4
65+	9	0	9	0	1	61	1	54	6	5
Unknown	0	0	0	0	0	0	0	0	0	0
Total	31	0	31	0	1	205	7	172	26	24

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2011-2012

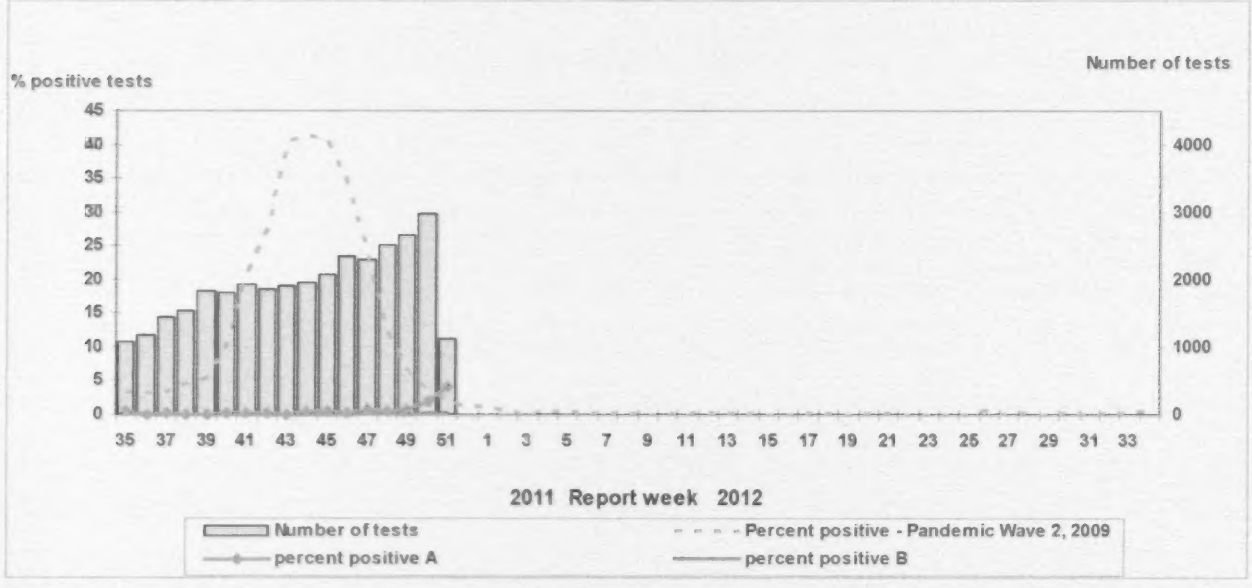
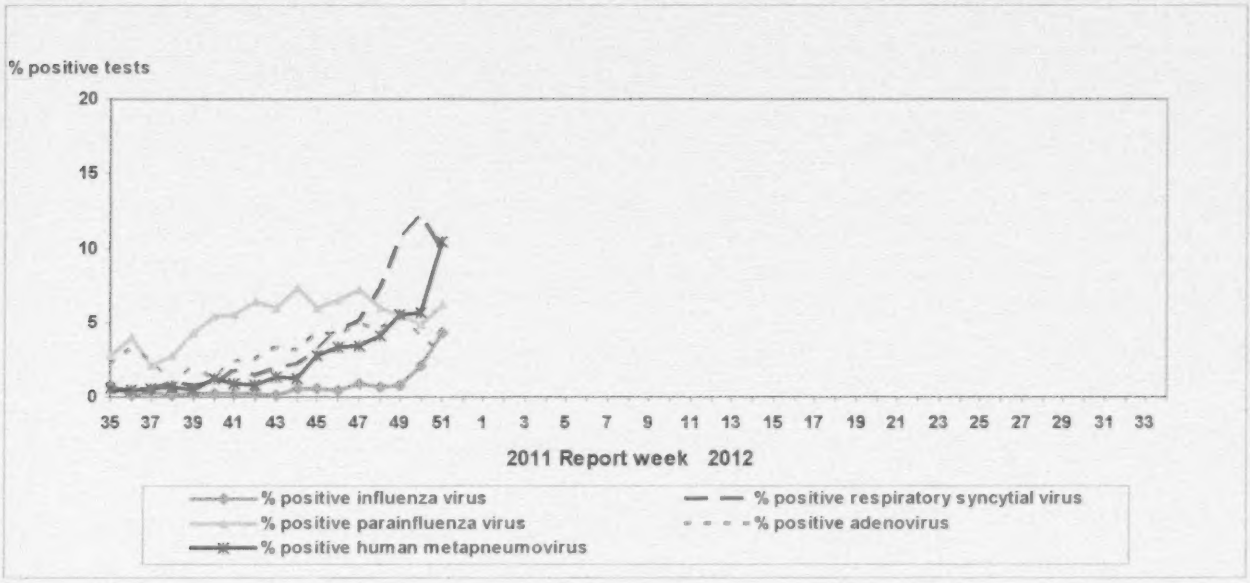


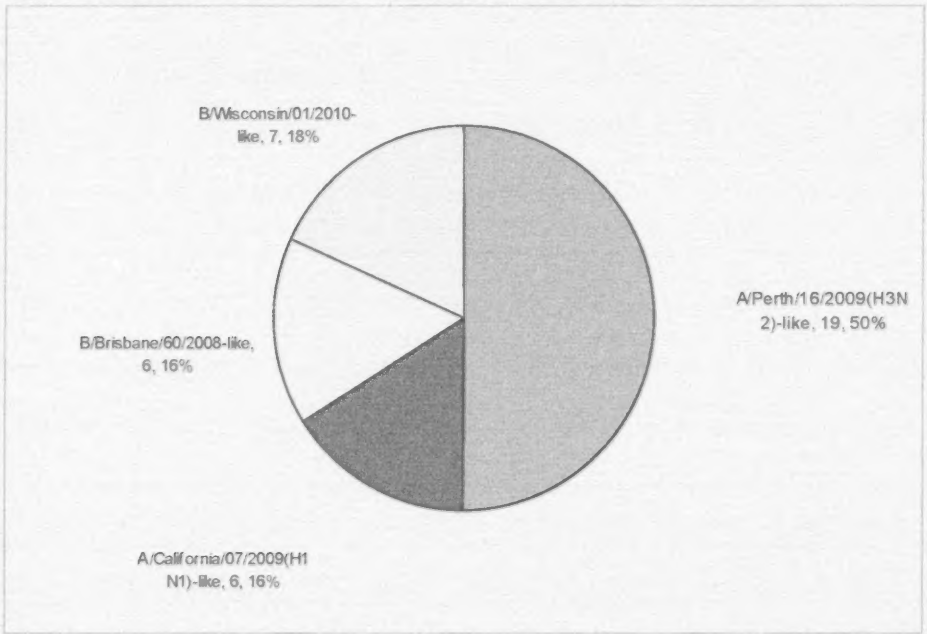
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2011-2012


% positive tests
20
15
10
5
0
35 37 39 41 43 45 47 49 51 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33
2011 Report week 2012
% positive influenza virus
% positive parainfluenza virus
% positive human metapneumovirus
% positive respiratory syncytial virus
% positive adenovirus

Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 38 influenza viruses (19 A/H3N2, 6 A/H1N1 and 13 B). All 19 A/H3N2 viruses (from BC, AB & ON) are antigenically related to A/Perth/16/2009. All 6 A/H1N1 viruses (from QC & ON) are antigenically related to A/California/07/2009. Six of the influenza B viruses characterized (from AB, ON & QC) are antigenically related to the vaccine strain B/Brisbane/60/2008 (Victoria lineage). The other 7 influenza B viruses (from BC, AB, ON, QC & NB) are antigenically related to the reference virus B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. (Figure 6)

Figure 6. Influenza strain characterizations, Canada, 2011-2012, N = 38



Note: The recommended components for the 2011-2012 Northern Hemisphere influenza vaccine include: A/Perth/16/2009 (H3N2), A/California/7/2009 (H1N1) and B/Brisbane/60/2008.

Antiviral Resistance

Since the beginning of the season, NML has tested 34 influenza viruses (19 A/H3N2, 5 A/H1N1 and 10 B) for resistance to oseltamivir (by phenotypic assay and/or sequencing) and for resistance to zanamivir (by phenotypic assay) and it was found that all 34 viruses were susceptible to oseltamivir and zanamivir. A total of 29 influenza A viruses (24 H3N2 and 5 H1N1) were tested for amantadine resistance and all 29 were found to be resistant. (Table 3)

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2011-2012

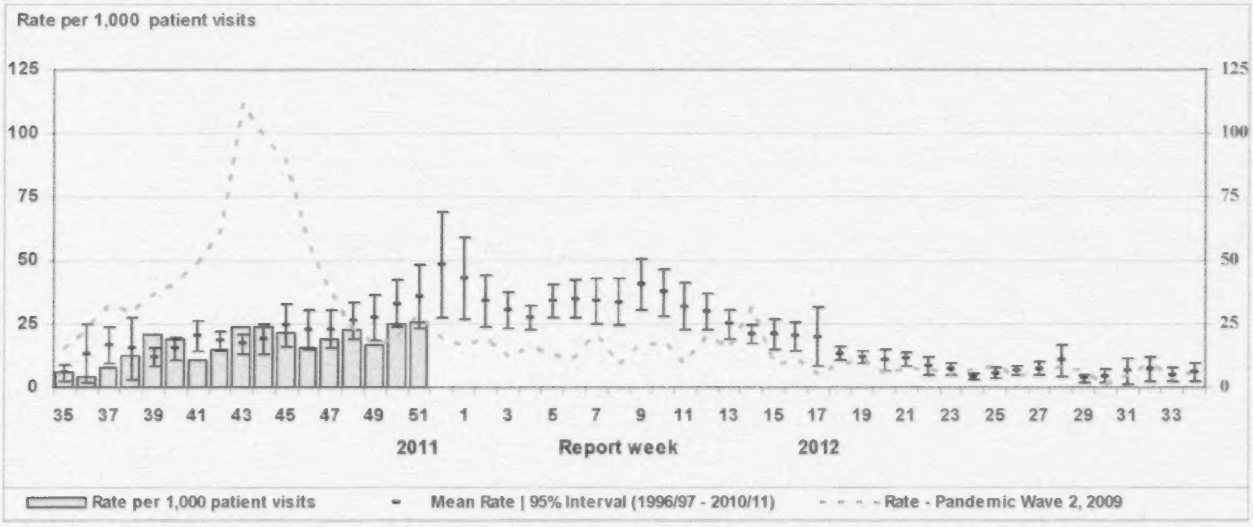
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	19	0	19	0	24	24 (100%)
A (H1N1)	5	0	5	0	5	5 (100%)
B	10	0	10	0	NA*	NA*
TOTAL	34	0	34	0	29	29 (100%)

* NA – not applicable

Influenza-like Illness (ILI) Consultation Rate

The national ILI consultation rate increased slightly from previous week to 25.9 ILI consultations per 1,000 patient visits in week 51 but is within the expected levels for this time of year (Figure 7). The highest consultation rates this week were observed in children under 5 (70.6/1,000 visits) and those 5 to 19 years old (36.7/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2011-2012 compared to 1996/97 through to 2010/11 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths
In week 51, two new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations (from BC) were reported through the Immunization Monitoring Program Active (IMPACT) network. Both cases tested positive for influenza A (unsubtyped). The first case was <6 months of age and the other was between 10-16 years of age.

Fifteen cases have been reported this season to date (from BC, AB & QC); all of which were due to influenza A. The proportion of cases by age group is as follows: 13.3% among infants <6 months of age; 6.7% among children 6-24 months of age; 40.0% were between 2-4 years; 20.0% were between 5-9 years; and 20.0% were between 10-16 years.

Adult Influenza Hospitalizations and Deaths
In week 51, no new laboratory-confirmed influenza-associated adult hospitalizations were reported.

To date this season, 10 influenza-associated adult hospitalizations have been reported from two provinces (AB & ON). The proportion of cases by age group is as follows: 20% were in those 20-44 years of age; 20% were in those 45-64 years of age and 60% were in those ≥ 65 years.

Note: Influenza-associated adult hospitalizations are not reported to PHAC by the following Provinces: BC, QC, & NB. Only hospitalizations that require intensive medical care are reported by SK.

International Influenza Updates

There is no update available from WHO until January 6, 2012.
World Health Organization influenza update

United States: In week 50, the CDC reported that 2.1% (64/2,993) of influenza tests were positive. Since October 1, 2011, the CDC characterized 63 influenza viruses: 9 A/H1N1, 43 A/H3N2 and 11 B. All A/H1N1 viruses were characterized as A/California/7/2009-like. Of the 43 influenza A/H3N2 viruses that were characterized, 42 were A/Perth/16/2009-like and 1 showed reduced titers with antiserum produced against A/Perth/16/2009. Seven influenza B viruses were characterized as B/Brisbane/60/2008-like (B/Victoria lineage) and 4 B viruses belong to the B/Yamagata lineage. National and regional proportions of visits due to ILI were below baseline levels. Two states reported localized influenza activity (Alabama & Virginia) while the rest reported either sporadic or no activity.
Centers for Disease Control and Prevention seasonal influenza report

Novel Influenza A Virus: Two human infections with novel influenza A viruses were detected in two states (West Virginia & Wisconsin). The Wisconsin patient was infected with an influenza A (H1N1) variant virus with genes from human, swine, and avian lineages (A(H1N1)v) and reported close contact with pigs prior to illness onset. The west Virginia patient was infected with an influenza A (H3N2) variant virus with genes from human, swine, and avian lineages (A(H3N2)v) and did not have contact with pigs prior to illness onset, but did have contact with another confirmed case of A(H3N2)v. Both patients have recovered from their illnesses. Additional information on the Wisconsin case can be found in the CDC Have You Heard posting and additional information on the West Virginia case can found in the related MMWR article.

Europe: In week 51, levels of influenza activity in Europe remained low. Of the 35 countries reporting on geographical distribution of influenza activity, one (Italy) reported local activity and 13 countries reported sporadic spread. Out of 35 countries reporting on trends, 6 reported increasing trends. All countries reported low intensity of influenza activity and low impact on their health care services. The percentage of sentinel samples that tested positive for influenza in week 51 remained low (8%), as is common for this time of year. Since week 40, 19 influenza viruses have been characterized antigenically: 2 were A/California/7/2009 (H1N1)-like; 13 were A/Perth/16/2009 (H3N2)-like; 2 were B/Florida/4/2006-like (B/Yamagata/16/88 lineage), 1 was B/Bangladesh/3333/2007-like (B/Yamagata/16/88 lineage) and 1 was B/Brisbane/60/2008-like (B/Victoria/2/87 lineage).
EuroFlu weekly electronic bulletin

Human Avian Influenza Updates

No new cases of human A/H5N1 avian influenza infection have been reported by the WHO since December 21, 2011.
WHO Avian influenza situation updates

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2011-2012 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2011-2012 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. workplace, closed communities.

Influenza Activity Levels Definition for the 2011-2012 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles. Pour en recevoir un exemplaire dans l'autre langue chaque semaine, veuillez communiquer avec Estelle Arseneault, Division de l'immunisation et des infections respiratoires au (613) 998-8862.